

**Methodology:** The tool utilizes a thorough investigative process sufficient to produce credible and practical data which can be used to form a “System Improvement Plan.” While the scope of the project can be seen as relatively broad, the assessment process allows for adaptation to a wide variety of EMS system models which bring specific focus to the greatest areas of improvement opportunity with practical applications and alignment with those resources which are available to a given governmental entity.

**Presentation:** This abstract, (in both oral and poster presentation format), demonstrates a portional mock evaluation with focus on those components often overlooked by both evolving and mature formal system designs by the international EMS community. The SAGA approach is an invaluable tool for those responsible for integrating the functionality and needs of a broad range of stake holders into the overarching prehospital delivery system in building support for qualitative improvements.

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#### (A79) Where Do Ed Patients Come From?

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A lack of access to primary care services, decreasing numbers of general practitioners (GPs) and free of charge visits have been cited as factors contributing to the rising demand on emergency departments. This study aims to investigate the sources of patients' referrals to emergency departments and track changes in the source of referral over a six-year period in Queensland. Data from Queensland Emergency Departments Information Systems were analyzed based on records from 21 hospitals for the periods 2003–04 to 2008–09. The emergency department data were compared with publicly available data on GPs services and patients attendance rates. In Queensland, the majority of patients are self-referred and a 6.6% growth between 2003–04 and 2008–09 (84.4% to 90% respectively) has been observed. The number of referrals made by GPs, hospitals and community services decreased by 29.4%, 40%, 42% respectively during the six-year period. The full-time workload equivalent GPs per 100,000 people increased by 4.5% and the number of GP attendances measured per capita rose by 4% (4.25 to 4.42). An examination of changes in the triage category of self-referred patients revealed an increase in triage category 1–3 by 60%, 36.2%, and 14.4% respectively. The number of self-referred patients in triage categories 4–5 decreased by 10.5% and 21.9% respectively. The results of this analysis reveal that although the number of services provided by GPs increased, the amount of referrals decreased, and the proportion of self-referred patients to emergency departments rose during the six-year period. In addition, a growth in urgent triage categories (1–3) has been observed, with a decline in the number of non-urgent categories (4–5) among patients who came directly to emergency departments. Understanding the reasons behind this situation is crucial for appropriate demand management. Possible explanations will be sought

and presented based on patients' responses to an emergency department users' questionnaire.

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#### (A80) Nationwide Study to Improve Door-to-Balloon Times in Patients with Acute ST Elevation Myocardial Infarction Requiring Primary Percutaneous Coronary Intervention Using Prehospital ECG Transmission

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**Objective:** To reduce nationwide door-to-balloon times (DTB) in patients presenting with acute ST-elevation myocardial infarction (STEMI) requiring primary percutaneous coronary intervention (PCI), by adoption of pre-hospital wireless 12-lead electrocardiogram (ECG) transmission by Singapore's national ambulance service.

**Methods:** A phased, prospective, before-after, interventional study of all patients who presented to the national ambulance service with the diagnosis of STEMI. In the 'Before' phase, chest pain patients only received 12-lead ECGs on arrival at the Emergency Departments (ED), where diagnosis of STEMI could be made. In the 'After' phase, 12-lead ECGs were performed in the field by ambulance crews and transmitted while en-route to the hospitals. Diagnoses of STEMI was made by on-duty emergency physicians (EP) prior to patients' arrival and PCI activated. Data was collected from ambulance run sheets, ECG transmission logs, EDs and cardiology units.

**Results:** 451 eligible patients from “Before” and 214 patients from “After” phase were included in the analysis. Median DTB time was 88 minutes in the “Before” and 52 minutes in the “After” phase ( $p = 0.0001$ ). During office hours, median DTB times for 'Before' and 'After' phases were 84 minutes and 47 minutes, respectively ( $p = 0.0001$ ). After office hours, median DTB times for 'Before' and 'After' phases were 95 minutes and 54 minutes, respectively ( $p = 0.0001$ ). There were 11 false positive activations in “Before” phase and one in the “After” phase.

**Conclusion:** Pre-hospital ECG transmission resulted in significant reduction of DTB time; this effect occurred regardless of whether patients presented to the ED before or after office hours. No increase in false activations was found in the “After” phase. Pre-hospital ECG transmission should be adopted as “standard of care” for all STEMI cases meeting the criteria for PCI.

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#### (A81) Curing Overcrowding and Boosting Patient Flow in a High Volume, Low Capacity Emergency Department

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**Background:** Overcrowding afflicts emergency departments (ED) worldwide. The CDC has reported that EDs in the